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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/608,507	06/30/2000	Salvador Palanca	042390.P8918	9545

7590 03/12/2004

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EXAMINER

THAI, TUAN V

ART UNIT	PAPER NUMBER
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2186

13

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,507

Applicant(s)

PALANCA ET AL.

Examiner

Tuan V. Thai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Part III DETAILED ACTION

Specification

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 14, 2003 has been entered.

Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mattson (USPN: 5,717,893).

As per claims 1 and 7, Mattson teaches the invention as

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claimed including an apparatus and method for dynamically partitioning a cache array based upon requests for memory from an integrated device having **plurality of processors/CPUs** (e.g. see figure 1a-1e, figure 2; abstract; column 3, line 66 bridging column 4, line 51; column 8, lines 14 et seq.). Mattson, with only exception, does not particularly disclose the type of processor being graphics processor as being claimed. Noting that (a) Mattson clearly states that the scope of his invention is not limited by the appended specification and claims, but various alternatives, modifications and equivalents can be used (e.g. see column 21, lines 20-24); secondly (b) cache partitions/subcaches of Matton can be implemented to store different data types (known to be included video, audio, or graphical data) (e.g. see column 4, line 66 bridging column 5, line 4). Accordingly, it would have been obvious to one having ordinary skill in the art at the time the current invention was made to readily recognize that Mattson's invention can be implemented in the graphical-data-processing environment by utilizing different type of CPUs/processors including the graphical processor as being claimed. By doing so, it would increase the flexibility of Mattson's system by allowing it to serve a broader range of applications and their variants thereby broadening one's potential market and saving investment capital.

As per claims 2 and 3, subdividing one or more ways/sets within the cache array (e.g. see column 3, lines 14 et seq.,

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column 3, line 66 bridging column 4, line 51; column 8, lines 14 et seq.);

As per claim 4, using a single least recently used array to replace ways (e.g. see column 5, lines 28 et seq.);

As per claim 5, the pseudo LRU algorithm update based on an entry hit is taught by Mattson since single LRU-List is used for management and control of a single blocksize cache block (e.g. see column 5, lines 31 et seq.; column 8, lines 31 et seq.);

As per claim 6, the further limitation of partitioning the cache array into a direct-mapped is embedded in Mattson and being taught to the extent that it is claimed since Mattson discloses multiple prior arts, that are incorporated by references which discloses that there is only one possible location for each data entry (e.g. see column 2, lines 15 et seq.);

As per claim 8, an integrated device having a plurality of processors connected to the cache memory array (e.g. see figure 1);

As per claim 9, a main memory device connected to the cache memory array (e.g. see figure 3);

As per claim 10, plurality of processors having a graphics processor and a central processor is taught to the extent that it is being claimed (e.g. see figure 1, column 21, lines 20 et seq.);

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As per claims 11-16; Mattson disclose the invention as claimed, detailed above with respect to claims 1-10; Mattson however does not particularly disclose a computer-readable medium of instructions to be implemented on a computer as being claimed in claims 11-16. However, one of ordinary skill in the art would have recognized that computer readable medium (i.e., floppy, cd-rom, etc.) carrying computer-executable instructions for implementing a method, because it would facilitate the transporting and installing of the method on other systems, is generally well-known in the art. For example, a copy of the Microsoft Windows operating system can be found on a cd-rom from which Windows can be installed onto other systems, which is a lot easier than running a long cable or hand typing the software onto another system. The examiner takes Official Notice of this teaching. Therefore, it would have been obvious to put Mattson's program on a computer readable medium, because it would facilitate the transporting, installing and implementing of Mattson's program on other systems.

4. Applicant's arguments filed September 22, 2003 have been fully considered but they are moot in view of a new ground of rejection.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan V. Thai whose telephone number is (703) 305-3842. The examiner can

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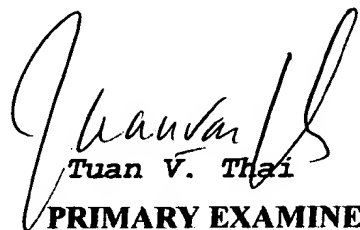
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normally be reached on from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew M. Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVT/March 02, 2004


Tuan V. Thai
PRIMARY EXAMINER
Group 2100